AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

Volume 27, Number 4 NEWSLETTER July–August 1997

PRESIDENT'S REPORT

More Political Activism by AWM

Following up on the political activities in D.C in March which I reported in the last issue, AWM and others in the mathematical community participated in a "Science and Technology Congressional Visits Day" and briefing held April 17 and 16, respectively. These events, sponsored by the Coalition for Technology Partnerships (CTP) and the Science-Engineering-Technology Work Group (SETWG), were part of an organized effort by several hundred researchers, representatives from industry, and educators to discuss informally the importance and the needs of science and technology with over 200 congressmen, senators and legislative aides.

During our visits, the legislators and their assistants expressed positive feelings about science and technology and its benefits. Although the legislators now want primarily to cut spending and reduce the budget deficit, many legislators consider science to be a valuable, forward-looking, and upbeat item to support. President Clinton said: "To prepare for the twenty-first century, we need to harness the forces of science and technology." Senator Phil Gramm has introduced legislation to increase the science budget. The public on the whole is favorably inclined toward science and scientific research.

On behalf of the American Mathematical Society and AWM, I visited six legislators' offices with others from the mathematics community (including AWM Past-president Cora Sadosky). These visits were interesting and enjoyable and seemed to be effective. Our groups mainly stressed the value and needs of the National Science Foundation (NSF), as that is the agency with which we are most familiar. (I also mentioned the National Security Agency as supportive of AWM.) At first we were pushing for a three percent increase for the NSF, but later there were hints that some legislators were interested in making it seven percent. In fact now the House Committee on Science has authorized a 7.2% increase for NSF. This is a great victory!

IN THIS ISSUE

AWM
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MATHEMATICS

The Association was founded in 1971 at the Joint Meetings in Atlantic City. The purpose of the association is to encourage women to study and to have active careers in the mathematical sciences. Equal opportunity and the equal treatment of women in the mathematical sciences are promoted.
The *Newsletter* is published bi-monthly.
The Editor welcomes articles, letters, and announcements.
Circulation: 4,500.

What You Can Do

The 7.2% authorization does not mean as much as an actual appropriation, but it is a start! AWM members, this is a good time to write, call, and/or email your representatives and ask them to support the 7.2% increase for NSF, a long-time supporter of our profession and in particular of AWM and our goal to increase the participation of women and minorities in the mathematical sciences. Ask your Members of Congress to inform Congressmen Bob Livingston (LA; chair of the House Appropriations Committee) and Jerry Lewis (CA; chair of the Appropriations subcommittee which oversees NSF) of their support for the increase. Please contact your representatives (especially if you are in the districts of Livingston and Lewis).

Highlights of the Briefing Session

The day before the congressional visits was set aside for briefing us: various science officials in the government and heads of agencies gave facts, strategies, and pep-talks. We were urged to make comparisons with other countries, to emphasize our broad-based effort for global leadership, to avoid distinctions between basic and applied research, and to stress the importance of science and technology for our country's future and destiny.

Dr. Neal Lane of the National Science Foundation said he appreciated our work: "You have halos on your heads." "In general," he continued, "society supports science, but is relatively uninformed; only two percent of Americans say they understand the scientific method." Other speakers said: "The bridge to the twenty-first century can't be built of Legos!" and "If a society focuses on survival it dies — Rome ate itself to death!" (drawing an analogy between the dangerously high percentage of the U.S. budget which goes to entitlements and the lack of foresight which destroyed Rome). In his dazzling speech, Dan Golden of the National Aeronautics and Space Administration listed the seven concrete goals of NASA's 25-year strategic plan; he also mentioned his concern that kids today watch TV for more hours than they spend at school.

There was also a debriefing the afternoon following the congressional visits. We met representatives from other scientific disciplines and industry and compared notes about our reception with legislators; generally all of us were pleased with how the day had gone. They asked how to increase the participation of women in their organizations and disciplines and particularly mentioned the importance of promoting mathematics among young women in order to prepare them for scientific careers.

Sponsors of the Congressional Visits Day: CTP and SETWG

CTP is an organization of about 110 businesses, trade associations and technical societies who "have joined forces to demonstrate that partnerships between government and industry reflect

the realities of today's budget climate and technology development mechanisms." Their spokesperson, Kathleen Kingscott, spearheaded the briefing with the assistance of Janis Tabor of SETWG. SETWG is "an information network comprising professional, scientific, and engineering societies, higher education associations, institutions of higher learning, and trade associations, which is concerned about the future vitality of the U.S. science, mathematics and engineering enterprise." (AWM has now joined SETWG.)

The AMS Committee on Science Policy (CSP): How to Lobby

As president of AWM, I was invited to attend the CSP meeting held in D.C. the Friday and Saturday following the congressional visits. This meeting was extremely interesting, particularly because the focus was on what the prospective funding situation is for mathematics and how we can effectively build grass roots support for mathematics. A former congressman from Pennsylvania, Douglas Walgreen, began with a slogan: "Be a friend, to have a friend." He recommended getting to know your legislators and developing an ongoing acquaintance with them, so that eventually they may call on you for advice. Legislators feel they are constantly criticized, they work long hours, and they appreciate praise. He said it's not necessary to give large donations to "be a friend"; small donations may sometimes mean more. He also suggested visiting legislators' home offices. The Washington visits are helpful, but a back-home presence may be even more important. He advised using the Internet to develop networks for lobbying, in order to rally a lot of people when there is a critical issue.

There were several other speakers at the portion of the CSP meeting I attended. Janis Tabor of SETWG and John Crowley of MIT, a member of a lobbying group for several colleges, described effective lobbying techniques. Don Lewis reported on the state of the NSF: in 1997 the mathematics budget was increased 10 percent; most has gone to graduate students and equipment. The NSF generally wants larger grants to be submitted — perhaps even to the point of setting a maximum of two grants per department — because they are less work for the staff. In addition there were reports from John Tucker, the Director of the Board of the Mathematical Sciences; Fred Howes, Program Manager for the Mathematics, Information and Computer

MEMBERSHIP AND NEWSLETTER INFORMATION

Membership dues

Individual: $40
Family (no newsletter): $30
Retired, part-time: $20
Student, unemployed, developing nations: $10
Contributing: $100
All foreign memberships: $8 additional for postage
Dues in excess of $10 and all contributions are deductible from federal taxable income.

Institutional:
Level 1 (one free basic job ad and up to ten student memberships): $120 ($200 foreign)
additional student memberships: $10 ($18 foreign) for next 15; $6 ($14 foreign) for remainder
Level 2 (one free basic job ad and up to three student memberships): $80 ($105 foreign)
Corporate: $150 Affiliate: $250
Friend: $1000 Benefactor: $2500

Subscriptions and back orders

All members except family members receive a subscription to the newsletter as a privilege of membership. Libraries, women's studies centers, non-mathematics departments, etc., may purchase a subscription for $40/year ($48 foreign). Back orders are $6/issue plus shipping/handling ($5 minimum).

Payment

Payment is by check (drawn on a check with a U.S. branch), U.S. money order, or international postal order. Cash payment will be accepted if necessary, but only in U.S. currency.

Ad information

AWM will accept advertisements for the *Newsletter* for positions available, programs in any of the mathematical sciences, professional activities and opportunities of interest to the AWM membership and other appropriate subjects. The Director of Marketing, in consultation with the President and the Newsletter Editor when necessary, will determine whether a proposed ad is acceptable under these guidelines. *All institutions and programs advertising in the newsletter must be Affirmative Action/Equal Opportunity designated.* A basic ad is four lines of type. Institutional members receive one free basic job ad as a privilege of membership. For non-members, the rate is $60 for a basic ad. Additional lines are $6 each.

Deadlines

Editorial: 24th of January, March, May, July, September, November
Ad: 1st of February, April, June, August, October, December

Addresses

Send all **Newsletter** material **except ads and material for book review and education columns** to Anne Leggett, Department of Mathematical and Computer Sciences, Loyola University, 6525 N. Sheridan Road, Chicago, IL 60626; phone: (312) 508-3554; fax: (312) 508-2123; email: leggett@math.luc.edu. Send all material regarding **book reviews** to Marge Murray, Department of Mathematics, 460 McBryde Hall, Virginia Tech, Blacksburg, VA 24061-0123; email: murray@calvin.math.vt.edu and for the **education column** to Sally I. Lipsey, 70 E. 10th Street, #3A, New York, NY 10003-5106. Send everything else, **including ads and address changes**, to Dawn V. Wheeler, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461; phone: (301) 405-7892; email: awm@math.umd.edu.

Systems Program of the Department of Energy; and Charles Osgood, Director of the Mathematical Sciences Program at NSA.

More on the Community of Math: CBMS and BMS

AWM is a member of two umbrella mathematical sciences organizations which met May 3–6 in Washington D.C., namely, the Conference Board of the Mathematical Sciences (CBMS) and the Board on Mathematical Sciences (BMS). Judy Green and Rebecca Herb represented the AWM at the recent CBMS meeting [see the report on page 9]. AWM appreciates the cooperation and assistance of these organizations in our efforts to promote our profession and the place of women and underrepresented minorities in it. Together we can increase communication and the dissemination of information about mathematics among the mathematics community and to the general public.

The formal purpose of the CBMS is "to promote understanding and cooperation among [the fourteen professional-society members] so that they work together and support each other in their efforts to promote research, improve education, and expand the uses of mathematics." The officers of CBMS are Ronald C. Rosier, Administrative Officer; John Dossey, Executive Committee Chair; Lisa R. Kolbe, Administrative Assistant; Nelson G. Markley, Secretary/Treasurer; and Members-at-Large Lynne Billard and Donald L. Kreider.

Associated with CBMS is the CBMS Education Partnership, which focuses on education issues and consists of representatives from each of the member societies. The AWM representative is Judy Green. For more information on the CBMS, see their webpage at http://www.maa.org/cbms/cbms.html.

Unfortunately AWM could not be represented at the May meeting of the Board on Mathematical Sciences. At that meeting the BMS discussed "Attracting, Educating, Matriculating, and Sustaining Underrepresented Minorities and Women in the Mathematical Sciences" and resolved to begin planning a workshop on that topic to be hosted by BMS. Another topic discussed was "Non-Full Time Faculty Use in Undergraduate Mathematical Sciences." Representatives from several mathematical societies gave reports, and a report from AWM was submitted in written form.

The BMS has been preparing short attractive reports on specific applications of research in the mathematical sciences. These reports could be helpful for activities like the congressional visits day. Some information on the reports is available in the "BMS Current Publications and Reports" section of the BMS homepage.

BMS' mission is "to support and promote the quality and health of the mathematical sciences and their benefits to the nation." Established in November 1984 to oversee activities in the mathematical sciences at the National Research Council (NRC), the Board consists of 15 individual members whose backgrounds represent the wide range of the mathematical sciences — core mathematics, applied mathematics, statistics, operations research, mathematics in the health and social sciences, scientific computing, and industrial mathematics. The Board, housed in the National Academy of Sciences building, serves as the U.S. National Committee for Mathematics (USNCM), which represents the U.S. mathematical sciences research community internationally. Besides BMS Director Tucker, the other members are Louis Auslander, Mary Ellen Bock, Peter E. Castro, Fan R.K. Chung, Avner Friedman, R. Duncan Luce, Robert MacPherson, Susan Montgomery, George Nemhauser, Anil Nerode, Dianne P. O'Leary, Ingram Olkin, Ronald Peierls, Donald St. P. Richards, William P. Ziemer, and *ex officio* member Daryl Pregibon.

For more information on the BMS, see its webpage at http://www2.nas.edu/bms/.

Last Words

As you may have noticed, I've become quite caught up in these giddying events promoting science. Maybe I've overwhelmed you with so many details. It was all new for me and refreshing. The people in Washington are mainly pleasant and concerned about doing the right thing. Probably they do feel unappreciated and overworked. They care about the opinions of their constituents and can become our allies.

What we are about in AWM is increasing the participation of women and helping our profession. In order to do that we've put on lots of programs and given our time. But we have benefitted greatly ourselves from programs that may end. The special awards for women of the NSF, such as the Visiting Professorships for Women award, have helped a great number of women, including me. It is worth putting forth what effort we can to keep these programs going.

Whenever we try to move into a new sphere, as we do now with effecting policy and making changes, it is extremely difficult. For most of us, becoming a mathematician was non-trivial. My evolving observation is that mathematics is more and more about communication — at first I thought I could hide and do mathematics: now I realize that it doesn't count if no one else knows about it, that it may not be correct if we can't explain it properly, that one of the most enjoyable parts is collaborating on research with others, and that sometimes it's necessary to preach and proselytize, just to keep it all going strong!

Good luck to you in all your endeavors! Prove great theorems, teach exciting classes and serve your profession well. And if you can find some new members for AWM and write some legislators about funding, let us know and we'll be ecstatic! Thanks!

Have a nice summer, too.

Best wishes,

Sylvia

Sylvia Wiegand
May 17, 1997
Lincoln, NE

ICM TRAVEL GRANTS

The American Mathematical Society has applied to several agencies for funds for partial travel support for U.S. mathematicians attending the 1998 International Congress of Mathematicians (ICM 98) August 18–27, 1998, in Berlin, Germany. In anticipation of the availability of funds, the Society is preparing to administer the selection process, which will be similar to those used in 1990 and 1994.

Applications for support will be printed in the September issue of the *Notices* of the AMS, and downloadable forms will be available on e-Math (at http://www.ams.org/profession/icm98.html) beginning August 1. All completed application forms must be mailed to the AMS by **October 31, 1997**. This travel grants program, if funded, will be administered by the Professional Programs Department, AMS, P.O. Box 6248, Providence, RI 02940; icm98@ams.org; 401-455-4105.

This program is open to U.S. mathematicians (those who are currently affiliated with a U.S. institution). Junior mathematicians (within six years of the doctorate), women, and members of U.S. minority groups are especially encouraged to apply.

Applications will be evaluated by a panel of mathematical scientists under the terms of a proposal submitted to the National Science Foundation (NSF) by the Society. Should this proposal be funded, the following conditions will apply: mathematicians accepting grants for partial support of travel to ICM 98 may not supplement them with any other NSF funds. Currently, the NSF's Division of Mathematical Sciences does not intend to provide additional funds on its other regular research grants for travel to ICM 98. However, an individual mathematician who does not receive a travel grant may use regular NSF grant funds, subject to the usual restrictions and prior approval requirements.

All information currently available about the ICM 98 program, organization, and registration procedure is located on the ICM 98 web site at http://elib.zib.de/icm98.

AWM SLATE ANNOUNCED!

We are pleased to announce the slate for this fall's AWM election. Jean Taylor (Rutgers University) has been nominated to serve as President-Elect. Patty Anthony (National Security Agency), Lucy Garnett (Baruch College, CUNY), Gail Ratcliff (University of Missouri at St. Louis), Paula Russo (Trinity College, Hartford), and Tilla Weinstein (Rutgers University) have accepted nominations for Member-at-Large; three will be elected.

Nominations by petition signed by 15 members are due to our president by **September 1, 1997**.

Thanks to the Nominating Committee (Cora Sadosky, Chair; Ruth Charney; and Jill Mesirov) for their efforts in producing this fine slate of candidates.

SLOAN FELLOWSHIPS

Nominations for candidates for Sloan Research Fellowships are due by **September 15, 1997**. Candidates must be members of the regular faculty at a college or university in the United States or Canada and must be at an early stage of their research careers. For information write: Sloan Research Fellowships, Alfred P. Sloan Foundation, 630 Fifth Avenue, Suite 2550, New York, NY 10111; email: gassman@sloan.org; www: http://www.sloan.org.

MSRI WORKSHOPS

The following workshops will be held at the Mathematical Sciences Research Institute (MSRI) during 1997–98: Harmonic Analysis and PDE, July 14–18, 1997; Introductory Workshop on Harmonic Analysis, August 18–22, 1997; Stochastic Partial Differential Equations (including Measure Valued Diffusions), September 15–19, 1997; Harmonic Analysis, Potential Theory, and Geometric Measure Theory, October 20–21, 1997; Oscillatory Integrals and Their Applications to Partial Differential Equations, October 23–24, 1997; Infinite Dimensional Stochastic Analysis (including Malliavin Calculus, Dirichlet Forms), November 3–7, 1997; Introductory Workshop on Model Theory of Fields, January 12–16, 1998; Geometric Stochastic Analysis and Fine Properties of Stochastic Processes (this workshop will stand in place of the Seminar on Stochastic Processes in 1998), March 23–27, 1998; and Model Theory, Algebra and Arithmetic, June 1–5, 1998. For more information on the workshops, visit the web site http://www.msri.org; or write MSRI, 1000 Centennial Drive, Berkeley, CA 94720.

HOPPER CELEBRATION

The 1997 Grace Hopper Celebration of Women in Computing will be held September 19–21, 1997 at the Fairmont Hotel, San Jose, CA. Plenary Session topics are Applications for the Future, Foundations for Change, Bridging the Disciplines, From Theory to Practice, and The Future of Computing: Views From the Executive Suite. Parallel technical sessions will be given. Parallel workshop/panel sessions are also included in the program; The Glass Ceiling and Under what Conditions and Constraints do Women and Girls Make their Choices to Engage and Persist in Computing? are two of the topics. The program also includes a gala banquet.

For further information, visit http://www.systers.org/hopper or write Ann Redelfs at redelfs@sdsc.edu.

CALL FOR NOMINATIONS: LOUISE HAY AWARD

The Executive Committee of the Association for Women in Mathematics has established the Louise Hay Award for Contributions to Mathematics Education, to be awarded annually to a woman at the Joint Prize Session at the Joint Mathematics Meetings every January. The purpose of this award is to recognize outstanding achievements in any area of mathematics education, to be interpreted in the broadest possible sense.

While Louise Hay was widely recognized for her contributions to mathematical logic and for her strong leadership as Head of the Department of Mathematics, Statistics, and Computer Science at the University of Illinois at Chicago, her devotion to students and her lifelong commitment to nurturing the talent of young women and men secure her reputation as a consummate educator. The annual presentation of this award is intended to highlight the importance of mathematics education and to evoke the memory of all that Hay exemplified as a teacher, scholar, administrator, and human being.

The nomination documents should include: a one to three page letter of nomination highlighting the exceptional contributions of the candidate to be recognized, a curriculum vitae of the candidate not to exceed three pages, and three letters supporting the nomination. It is strongly recommended that the letters represent a range of constituents affected by the nominee's work. *Five* complete copies of nomination materials for this award should be sent by **October 1, 1997** to: The Hay Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461.

For more information, phone (301) 405-7892 or email awm@math.umd.edu. Nominations via email or fax will not be accepted.

HRUMC '97

A woodwind quartet performance, a keynote address open to the public, and an appearance by the keynote speaker on a local TV program are three of the innovations associated with this year's Hudson River Undergraduate Mathematics Conference (HRUMC). The fourth annual HRUMC convened on Saturday, April 12, 1997, at Williams College in Williamstown, MA. As in past years, the conference has provided a unique opportunity for undergraduates from throughout the Northeast to gather together for a day of mathematics. Students and faculty participated as equal partners in presenting and attending lectures on a wide range of topics. Most of the talks were accessible to a typical calculus student while the remainder were geared towards the upper class mathematics major. There were roughly 130 lectures scheduled (most of which were delivered by students) and about 400 attendees. Student attendees, which included many first- and second-year students, outnumbered faculty by about a three to one ratio, as in previous meetings of this conference.

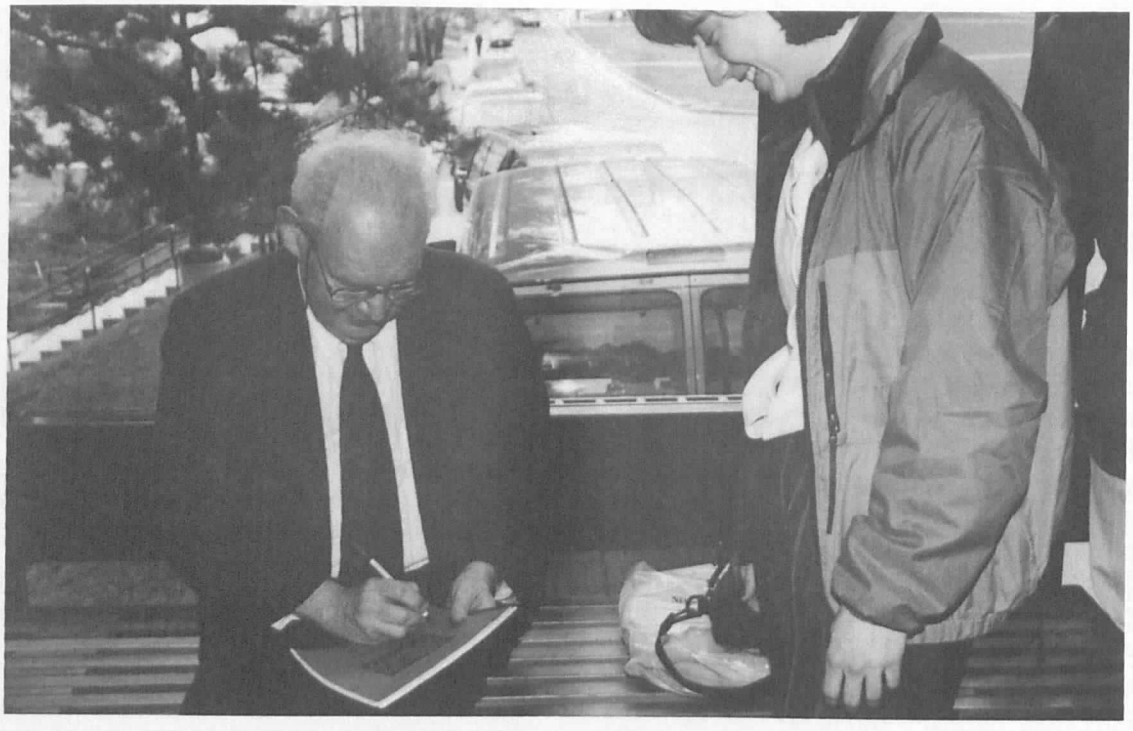
Registration began at 8:45 A.M. at a leisurely pace accompanied by refreshments. Participants had plenty of time to pick up their programs and plan their day as they talked informally with old friends and new acquaintances. Near the refreshments were tables of careers brochures and other literature kindly provided for distribution by various professional societies such as the American Mathematical Society, the Mathematical Association of America, the Society for Industrial and Applied Mathematics, and the Institute for Operations Research and the Management Sciences. Registration was followed by the first session of talks — with 16 concurrent sessions it was difficult to choose which to attend! Topics ranged from Algebraic Geometry to Fractals and Chaos to Computer Science to Statistics.

At 11:15 A.M. participants gathered to hear the keynote address, entitled "The Beauty and Usefulness of Fractals," by Benoit Mandelbrot, Abraham Robinson Professor of Mathematical Sciences, Yale University. Mandelbrot, who coined the term *fractal*, began his lecture by relating how questions of scale led him to his world-famous discovery, but unable to constrain his discussion to merely the topic of fractals, he soon embarked on an eloquent discussion of the more general question of success in mathematics, and in particular how a preoccupation with shapes and pictures served him as much as if not better than his formal training in mathematics.

Chia-Jung Chiu of Union College speaks on "Properties of Fractals and the Morphogenesis of Fungal Colonies"

Mandelbrot's keynote address provided the audience with plenty of food for thought, and this was followed by some real food as once again lunch was provided for registered attendees. The afternoon activities consisted of two more sessions of concurrent talks separated by a coffee break. Once again the range of talks was impressive; there were sessions in Number Theory, Topology, Geometry, Knot Theory, Combinatorics, Analysis, Linear Algebra, Applied Mathematics, and History of Mathematics (to name just a few) at a level ranging from introductory exposition to the reporting of original research. Some sample titles of the talks: "Quaternions Applied to Extended Generalized Mandelbrot Sets," "Specialization of Groebner Bases and Robotics," "Outer Crossing Numbers of Complete Bipartite Graphs," "A Next-Generation Web Search Engine," and "Properties of Fractals and the Morphogenesis of Fungal Colonies" (see photo). Other photographs show Mandelbrot autographing a program and Mandelbrot at lunch with Professor Frank Morgan (conference steering committee chair). The last talk was over by 4:30 P.M., which came all too fast and left participants satisfied but already eager to make plans for next year's conference.

David Vella, Skidmore College, Saratoga Springs, NY



Professor Benoit Mandelbrot signs a conference program

As mentioned above, there were a few novelties at this year's event. For the first time, the keynote address was open to the public, so in addition to the 400 or so conference participants, an additional 100 to 200 people came to hear Professor Mandelbrot speak. Another nice touch was the live woodwind quartet which provided 15 minutes of relaxing music just prior to the keynote address. Also this year marks the first time that several high schools sent official representatives to the conference. It's never too soon to say "Welcome to the Mathematics Community!"

On Sunday, April 13, Professor Mandelbrot was a guest on Professor Frank Morgan's live, call-in "Math Chat Show" on Williamstown local cable TV Channel 15. On this show, Mandelbrot gave more insight into his thinking about fractals. For example, Mandelbrot stated that one "looks for simple rules rather than complicated details." The characteristic feature of a fractal, its self-similarity on different scales, is an example of such a simple rule. Because of this, fractals can be used to create a computer-generated graphic image of, say, a mountain which looks quite realistic, without storing information about minute details of the picture. Later in the show he explains why he thinks the usual model of the real number system (the number line) is not very revealing — all numbers "look the same." Instead, he envisions a model based on the binary decimal expansion of each real number where each binary digit represents a branch of a tree. Clearly and not surprisingly, the resulting model of the real number system is a fractal — a sort of infinite tree where each number is distinguished by which branches comprise its binary decimal. As Morgan adds, "each real number has its own story."

This year's HRUMC was very exciting, thanks to the generous financial support of the Howard Hughes Medical Institute, the New England Consortium for Undergraduate Science Education, and Williams College. The steering committee consisted of Edward Burger, Frank Morgan (Chair), and Eric Watson '97 from Williams College; Emelie Kenney and Scott Vandenberg from Siena College; Joan Hart and William Zwicker from Union College; and the author. Next year's conference will be held on April 18, 1998 at Union College in Schenectady, NY. For more information about the HRUMC, please visit our web page at http://www.skidmore.edu/academics/mcs/hrumc.htm.

Mandelbrot at lunch with Prof. Frank Morgan, Williams College, steering committee chair, Rathmell, Williams College, Luis Baars, SUNY at Geneseo, and others

CBMS REPORT

The Educational Partnership (EP) of the Conference Board of the Mathematical Sciences (CBMS) met in Washington, DC on May 2 and 3, 1997. Although there was some discussion on mathematics competitions, in particular the International Mathematics Olympiad scheduled to be held in the US in 2001, most of the meeting was devoted to President Clinton's directive on "Preparing Students to Meet National Standards of Excellence in Eighth Grade Math and Improving Math and Science Education." This directive, which is reprinted in the May–June 1997 Newsletter, mandates the development of a "voluntary national test for individual eighth-grade students to help parents and teachers learn who needs help, what changes in teaching to make, and which schools need to improve." General information concerning the directive can be found on the World Wide Web at http://www.ed.gov/nationaltests/.

Within the framework of the President's directive, the EP representatives discussed teacher education, professional development, curriculum, public information, and the test itself with members of the interagency working group from the NSF and the Department of Education formed "to develop an action strategy for using Federal resources to assist States and local school systems to prepare students to meet challenging math standards in eighth grade, and for involving the mathematics, scientific, and technical communities in support of these efforts." Members of the working group were clearly glad to have the opportunity to speak with such a diverse group of individuals concerned with mathematics education and, I believe, took away a number of suggestions that they will incorporate into their plans. In addition, the CBMS and its EP sent the DoED/NSF working group a five page document containing comments and suggestions.

Judy Green, Marymount University

SONIA KOVALEVSKY HIGH SCHOOL DAYS

Partial funding for three of the SKHS Days described below was provided by NSA through a grant to AWM.

Messiah College

The first Sonia Kovalevsky Day at Messiah College was held on Saturday, April 26, from 9:00 A.M. to 3:00 P.M. in Frey Hall on the Messiah College campus. Eighteen young women in grades 9–12 attended, as well as two female teachers. Participants represented four public high schools in central Pennsylvania. In addition, four Messiah College Mathematics faculty and 15 Messiah College students majoring in mathematics attended and worked with students throughout the day.

As the day began, Messiah College students and faculty welcomed the young women and their teachers, and continental breakfast was served. Each participant was given a T-shirt commemorating the Sonia Kovalevsky Day program ("Sonia Kovalevsky: Messiah College 1997, Celebrating the Wonder of Mathematics," with nested golden rectangles containing flowers, rabbits, bumblebees, a pineapple, and musical notes: all examples of Fibonacci numbers), as well as a folder containing a program for the day, promotional information about Messiah College, brochures from actuarial/engineering/mathematics organizations, "I Love Math" stickers, and pencils. The program began with welcoming remarks and a discussion of mathematics in unexpected places, particularly the occurrence of Fibonacci numbers in interesting contexts. Carrie Holt, a Messiah College student, discussed the life and career of Sonia Kovalevsky.

The morning workshop was held in a physics lab, where students used the software FractInt for Windows to create their own fractal designs. Messiah student Nadine Hart discussed the mathematics involved in creating the Mandelbrot set and showed the students how to zoom in on portions of the screen or change characteristics of the fractal image. Students were give 45 minutes to work with the program and choose one image to print on a transparency, using a color printer. Most students worked in pairs and were very excited as they explored a variety of images and changed parameters of the equations. This activity was by far the most popular of the day, and students were reluctant to leave!

The problem-solving contest was held in mid-morning, and students were given 45 minutes to work on seven problems, either in pairs or individually. Most students worked in pairs for the entire time. Problem-solving answer sheets were graded by teams of Messiah students in the afternoon, and prizes were given for the top three scores. While the girls worked on the problems, their teachers were invited to view and discuss "Good Morning, Miss Toliver," a video which describes the work of a master teacher in New York city.

Before lunch, a Messiah student spoke about the life and accomplishments of Mary Gray, mathematics professor and lawyer at American University. Students were given bag lunches to eat outside, near a "swinging bridge" on campus where one of the math/physics faculty members encouraged them to explore the oscillating behavior of the bridge. This was a valuable time for the students to socialize and meet students from other schools. Several girls ate their lunch with Messiah students and/or faculty and asked them questions about their work.

After lunch, two female engineering students from Messiah led the young women and teachers on a tour of the Engineering Department, including some of the equipment used in labs. This was followed by the afternoon workshop "Mathematics on the Internet," led by a Messiah student, who showed students how to visit various web sites related to mathematics. These sites were organized into various categories on Angela Hare's home page, which can be found on the Messiah College home page. Pictures from Sonia Kovalevsky Day and a description of the day's events can be found at http://www.messiah.edu/hpages/facstaff/ahare/home.htm.

The final speaker of the day was Carol Ciafré, an engineer working for GoodKind & O'Dea, a firm located in Carlisle, PA. Ms. Ciafré showed a short video describing types of engineers and then talked about her work with transportation and road planning. The students were interested in looking at her engineering plans and pictures.

To conclude the day, a Messiah student presented prizes to winners of the problem-solving contest as well as door prizes which included calculators, a book about careers in mathematics, and Messiah College shirts.

Angela Hare, Program Coordinator, Messiah College

Evaluation

This was the first year for Sonia Kovalevsky Day at Messiah College. This type of event is new to both faculty and students at Messiah and teachers and students in the local high schools. Therefore, many of the plans this year were foundational; we anticipated a rather small attendance and sought to have activities which would be suitable for a small group and would generate enthusiasm for future years. I was gratified to see that the young women who attended *were* very enthusiastic about the day and hope to return next year; I anticipate that attendance will increase dramatically in the next few years, and I hope that Sonia Kovalevsky Day will become an annual spring event here at Messiah.

Messiah College faculty and students were extremely supportive of this event and look forward to hosting it again. One of my goals was to stay in the background as much as possible and allow Messiah students to work with the young women, so that the girls would get to know the college students and perhaps see them as role models. It was wonderful to see that our students were eager to take this leadership role, and they carried it out extremely well. Throughout the day, I heard many of the girls commenting about how much *fun* it must be to study math in college and that they were eager to graduate from high school and get started! They were particularly impressed with the computer facilities available at Messiah (and not available at their schools). Messiah's mathematics building is well-suited to workshops such as the "Make your own fractal" or hands-on engineering and/or science workshops which I hope to incorporate in future years.

Overall, my assessment of Sonia Kovalevsky Day this year is that it was an extremely successful day which was enjoyed by everyone involved. The young women and their teachers indicated that they had a wonderful time and learned new and interesting things about the role of mathematics in the world. I am sure that some seeds were planted in the minds of the girls which may lead to majors and/or careers in mathematical sciences. Our students at Messiah were enthusiastic and are anxious to host the event again; this gives them valuable experience working with students, especially those who are considering a career in mathematics education. I anticipate that the young women and teachers who participated this year will return next year and will "spread the word" to other schools who were invited to participate this year but were unable to. Although April is a busy time of year in many schools, the teachers I spoke with agreed that Sonia Kovalevsky Day can become a successful, annual event once educators in the area recognize how valuable the event can be.

NSF-AWM TRAVEL GRANTS FOR WOMEN

The objective of the NSF-AWM Travel Grants program is to enable women to attend research conferences in their fields, thereby providing a valuable opportunity to advance their research activities and their visibility in the research community. By having more women attend such meetings, we also increase the size of the pool from which speakers at subsequent meetings may be drawn and thus address the persistent problem of the absence of women speakers at some research conferences.

Travel Grants. These grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant's field of specialization. A maximum of $1000 for domestic travel and of $2000 for foreign travel will be applied. International travel must be on U.S. flag carriers whenever possible.

Eligibility. These travel funds are provided by the Division of Mathematical Sciences of NSF, and the research conference must be in an area supported by DMS. For example, this includes certain areas of statistics, but excludes most areas of mathematics education and history of mathematics. Applicants must be women holding a doctorate (or equivalent experience) and having a work address in the U.S. (or home address, in the case of unemployed mathematicians). Anyone who has been awarded an AWM-NSF travel grant in the past two years or who has other sources of external funding, including *any* NSF grant, is ineligible. Partial support from the applicant's institution or from a non-governmental agency does not, however, make the applicant ineligible.

Applications. There will be three award periods per year, with applications due February 1, May 1 and October 1. An applicant should send *five* copies of 1) a description of her current research and of how the proposed travel would benefit her research program, 2) her curriculum vitae, 3) a budget for the proposed travel, and 4) information about all other sources of travel funding available to the applicant along with *five* copies of her cover letter to: Travel Grant Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461.

For more information, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted.

In future years, I hope to reach out particularly to schools in the city of Harrisburg; this year, these schools were involved in contract mediation during March and April and did not participate in SK Day, although they were invited. I would like to see Sonia Kovalevsky Day serve as an opportunity for students in suburban and city schools to meet each other and work together. I also hope that the girls' exposure to Messiah College might spark their interest in a week-long summer mathematics camp which I hope to start in a few years. Sonia Kovalevsky Days provide a wonderful way for colleges and high schools to work together as educators, and I am grateful for this opportunity made possible by AWM and NSA.

Miami University

On Saturday, March 1, 208 female high school students attended the Miami University's Sixth Annual Sonia Kovalevsky Mathematical Sciences Day in Oxford, Ohio. The girls learned about some of the interesting, diverse careers which they can pursue and enjoy if they have good problem-solving skills. They heard professional women discuss their careers in architecture, quality control, endocrinology, biostatistics, computer science, engineering, and meteorology. They saw slides of Gothic cathedrals in France, tropical rain forests in South America, and landscape designs in Ohio; they heard inspiring stories about how the women chose their careers and the educational backgrounds required for their work; and they discovered that mathematics plays a role in predicting the weather, proving a drug is safe, and in building sound structures which delight the eye eight hundred years after they are completed. Ninety of the girls also had the opportunity to work with robots as well as to build and race model cars in Miami's Manufacturing Engineering Labs.

Miami's first Sonia Kovalevsky Day was sponsored by the Miami Department of Mathematics and Statistics and the Association for Women in Mathematics, which gave important encouragement in the form of a $600 grant. Since then, the Cincinnati Chapter of the American Statistical Association, the Miami Women's Studies Program, and Sigma Xi have been co-sponsors in various years. Proctor and Gamble Inc., which is headquartered in nearby Cincinnati, has been Sonia Day's most consistent benefactor, giving $600 in each of the last five years. Finally, Vicki Stover Hertzberg, a graduate of Miami's Mathematics and Statistics Department who now chairs the Biostatistics Department at Emory University, provided seed money for the Sonia Kovalevsky Mathematical Sciences Day Endowment Fund maintained with the Miami University Foundation. She and fellow alumna Susan Johnson Allen have been the chief donors to the fund, which now totals more than $24,500. Interest from the endowment will be available in the future to help pay for the costs of speakers' travel, honoraria, prizes for attendees, a catered lunch, and the administrative costs associated with Sonia Day. Needless to say, all members of the organizing committee are thrilled that they can look forward to even better Sonia Days in the future because of the secured funding.

The organizing committee believes that this year's speaker did a wonderful job of encouraging high school students in their studies of mathematics and science. One of the high school girls wrote to Barbara Shea, a meteorologist with the National Weather Service in Little Rock, "You really helped me make a hard decision in my life. I've always been a 'math whiz'.... I've always dreamed of majoring in mathematics in college. The last few years, however, I was scared that I wouldn't get any job offers or could get anywhere with just a background in math. After your talk though, I'm *excited*!"

The girls were exposed to many careers they'd not considered before. Few knew about potential careers in quality consulting or biostatistics, for example. Many had not considered that landscape architecture could allow them to combine aesthetics, an interest in the outdoors, design, and mathematics. As has been Miami's tradition, the students, teachers, and parents were charged no registration fee, and they were provided doughnuts at the morning check-in and a free lunch at noon.

Rivier College

This is an overview of Rivier College's Eighth Annual Sonia Kovalevsky Day. We hosted 88 participants — students and teachers — from five high schools in New Hampshire and Massachusetts.

Emily Murphree at Miami University, Dept of Mathematics and Statistics, Oxford, Ohio

Jeanette McGillicuddy, Rivier College

The MAW topic, Mathematics and Internet/ Cyberspace, was the theme for all presentations. After the first six sessions, students and teachers joined for a single workshop. During the first morning session, presentations were made by Representative Sylvia Holley, Nashua, NH, and Natalie M. Manor, Natalie Manor Associates, and Richard Meyers, Ranger Enterprises. Rep. Holley presented "The State of New Hampshire and Its Venture into the Internet." She discussed legislation which she has submitted that will make possible the continued development of the state's web site, Webster. Ms. Manor and Mr. Meyers presented their topic "FMail — Cyber-Chat Around the World" in "real time." They were assisted by exchange students from Spain and Poland. Participants were invited to visit with high school sophomores and juniors in these two countries via the Internet. The speakers also discussed the technology provided, what is coming, what is here now, and how the participants could climb on board for their future.

During the second morning session, presentations were given by Mark Robinson, Computer & Network Services, Inc., and Kristin Lucas and Carol Hallowell, Technical Support and Quality Assurance, Aimtech Corporation. Mr. Robinson presented "The Challenge of the Internet," which covered what the Internet was and what it can do for you. He also discussed business on the Internet, security on the net, and how to find information on the net. Ms. Lucas and Ms. Hallowell presented "The Quality Goes In Before the Name Goes On," an overview of quality assurance and a hands-on look at Jamba software. Participants were guided through the Web development tool, and they were able to develop a simple web page.

The third set of morning presentations was given by George Duncan, Duncan Direct Associates and Yvonne Greenleaf, Chair, Mathematics/Computer Science Department, Rivier College. Mr. Duncan presented "If You Want To Catch a Fish, Give It Something to Byte On," which gave a view of marketing on the Internet. Ms. Greenleaf presented "These Are a Few of My Favorite Sites," a hands-on web-crawling session. Participants were given the necessary resources to conduct a mathematics scavenger hunt on the Internet.

The afternoon session was a panel discussion, "Questions and Answers: Did We Miss Anything?" The panel was comprised of the morning speakers and a moderator, Jeanette L. McGillicuddy, Mathematics/Computer Science Department, Rivier College. Questions ranged from "What was your mathematics background and how did it help you get your present position" to "Do you foresee the Internet becoming the complete reference tool with the demise of books?" This panel discussion assisted in tying together all of the presentations held in the morning and providing honest, useful information to the participants.

The evaluations from the students and the teachers were very mixed with comments spread from

CALL FOR NOMINATIONS: ALICE T. S CHAFER MATHEMATICS PRIZE
PLEASE NOTE CHANGE IN DEADLINE!!!

The Executive Committee of the Association for Women in Mathematics calls for nominations for the Alice T. Schafer Mathematics Prize to be awarded to an undergraduate woman for excellence in mathematics. All members of the mathematical community are invited to submit nominations for the Prize. The nominee may be at any level in her undergraduate career. She must either be a U.S. citizen or have a school address in the U.S.

The Schafer Prize was established in 1990 by the Executive Committee of the AWM and is named for AWM former president and founding member, Alice T. Schafer, who has contributed a great deal to women in mathematics throughout her career. The eighth annual Schafer Prize will be awarded at the Joint Prize Session at the Joint Mathematics Meetings in Baltimore, MD, January 1998.

The letter of nomination should include, but not be limited to, an evaluation of the nominee on the following criteria: quality of performance in mathematics courses and special programs, demonstration of real interest in mathematics, ability for independent work in mathematics, and performance in mathematical competitions at the local or national level, if any.

Supporting materials (e.g., reports from summer work using math, copies of talks given by members of student chapters, transcripts) should be enclosed with the nomination. Send *five* complete copies of nominations for this award to: The Alice T. Schafer Award Selection Committee, Association for Women in Mathematics, 4114 Computer & Space Sciences Building, University of Maryland, College Park, MD 20742-2461. The nomination deadline is **September 15, 1997**. Early submissions are encouraged.

For more information, contact AWM by phone (301-405-7892) or email (awm@math.umd.edu). Applications via email or fax will not be accepted.

wonderful to boring — "relevant to today's issues," "it was fun to talk to people across the world," "kind of boring, more hands-on, "the panel discussion was excellent." Some indicated a need for more hands-on activities, yet each presentation involved the students in some manner. We will continue to request student involvement in the presentations.

Additional publicity was provided by an appearance on the "Let's Talk Computers" radio show on WCAP in Lowell, Massachusetts. Jeanette McGillicuddy discussed the program and the historical significance of Sonia Kovalevsky.

We again wish to extend our thanks to the Association of Women in Mathematics for your continued financial support. In addition, speakers and software support were provided by Aimtech Corporation, Nashua, NH.

St. John's University

On Monday, March 24, 1997, 170 high school students and 29 teachers from 25 schools attended the Sixth Annual Sonia Kovalevsky High School Mathematics Day, hosted by the Department of Mathematics and Computer Science. Reverend Donald O'Connell, Dean of St. John's College, warmly welcomed the visitors and spoke about the unique intellectual accomplishments of Sonia Kovalevsky in the face of many obstacles.

Three panelists from diverse occupations came next. Serena Lee, an electrical engineer at Con Ed, spoke about her work and said that she looked forward to some of the students joining her at Con Ed in the future.

Susan Davenport, an Investment Banker at Salomon Brothers, emphasized to the students that "Math is more than $a^2+b^2=c^2$: it is the key to a world of opportunities."

The third panelist, Ann Michel, is President of Insights International, a company that produces films and videos. She showed excerpts from two of her films, one of which described how learning math can be fun. Ann, who majored in math, explained that "documentary film-making is like solving a mathematical word problem. You are presented with a set of information, and from that set you need to determine which information is relevant, which is irrelevant, which is just noise, and which is plain untrue. Your job is to extract the essence, the facts, the story."

After questions and answers, teachers and students split up to attend two workshops of their choice. For the second time, a workshop led by three undergraduate math majors proved to be especially popular. The high school girls asked questions about what could be done with a math major and what the "work load" was like. They were impressed that each of the math majors was preparing for a career in a different field: law, business, education.

This year, for the first time, lunch was accompanied by poster exhibits presented by math majors. Not only were the high school students fascinated but so were the teachers, who said it gave them ideas for their own classes. A booklet of summer projects related to the exhibits was also distributed.

The guest speaker was Angela Hurdle, a research manager at Market Statistics, the oldest consumer, economic and business information company in the United States. Ms. Hurdle used a computer to demonstrate how a state-of-the-art software program is used to display information, via color-coded maps, that would assist a company to assess its position in a competitive world. Students were amazed at the extent of the data available (which is based on census figures) and the creation of such software. She explained that her background in computers, received as part of her math major, helped her immensely and gave her flexibility in her work.

In conclusion, Ms. Hurdle urged all students, regardless of their major, to set goals: start with short-term goals and progress to longer term; "through setting goals, all things can be achieved."

Rounding off the day were two Math Bowls, one for freshmen and sophomores, and one for juniors and seniors.

Excerpts from typical student evaluations ranged from:

> The talks made me want to really consider math as the career I choose to be in.

to:

> I see that math can be fun....

From the teacher evaluations:

> Expand it ... more of my colleagues would love to attend.

Anne Hughes and Rora Iacobacci, Co-Directors, Sonia Kovalevsky HS Day

AWM WORKSHOP FOR WOMEN GRADUATE STUDENTS AND POSTDOCTORAL MATHEMATICIANS

supported by the Office of Naval Research and the Association for Women in Mathematics

Over the past nine years, the Association for Women in Mathematics has held a series of workshops for women graduate students and recent Ph.D.'s (referred to as "postdocs" below) in conjunction with major mathematics meetings.

WHEN: The next AWM Workshop will be held in conjunction with the annual Joint Mathematics Meetings in Baltimore, Maryland, January 6–10, 1998 *(pending renewal of funds)*. The Workshop will be held on Saturday, January 10, 1998 with an introductory dinner for participants tentatively scheduled for Thursday evening, January 8, 1998.

WORKSHOP: We invite each participating graduate student to present a poster on her thesis problem and each postdoc to present a talk on her research. AWM will offer funding for full travel costs, meeting registration, and two days subsistence for up to 20 participants. Participants will have the opportunity to present and discuss their research and to meet with other women mathematicians at all stages of their careers. The workshop will also include a panel discussion on issues of career development, a luncheon, and a dinner with a discussion period. All mathematicians (female and male) are invited to attend the Saturday program, whether or not they are funded. Departments are urged to help graduate students and postdocs obtain some institutional support to attend the workshop and the associated meetings.

MENTORS: We also seek volunteers to lead discussion groups and to act as mentors for workshop participants. If you are interested in volunteering, please contact the AWM office.

APPLICATIONS: To be eligible for funding, *graduate students* should have made substantial progress toward their thesis. Preference will be given to graduate students who are in their final year. The word "postdoc" refers to any mathematician who has received her Ph.D. within approximately the last five years, whether or not she currently holds a postdoctoral or other academic position. All non-U.S. citizen applicants must have a current U.S. address. Applications should include a curriculum vita, a concise description of research (two to three pages), and a title for the proposed talk/poster. All applications should also include at least one letter of recommendation; in particular, a graduate student should include a letter of recommendation from her thesis advisor. Nominations by other mathematicians (along with the information described above) are also welcome.

Send **five** complete copies of the application materials (including the cover letter) to:

Workshop Selection Committee
Association for Women in Mathematics
4114 Computer & Space Sciences Building
University of Maryland
College Park, Maryland 20742-2461

Phone: 301-405-7892 Email: awm@math.umd.edu

(Applications via email or fax will not be accepted.)

APPLICATION DEADLINE: **September 1, 1997**

POWRE

The NSF's Visiting Professorships for Women (VPW) program and several others have been combined into Professional Opportunities for Women in Research and Education (POWRE). Announced in May, the submission deadline for FY97 is July 1, 1997, which is already upon us. But December 9 of 1997, 1998, and 1999 are the receipt deadlines for the three subsequent fiscal years. We encourage you to apply.

Introduction

The National Science Foundation's mandate to ensure the vitality of the nation's scientific and engineering enterprise requires a focus on the quality, distribution, and effectiveness of the human resource base in science and engineering, including full utilization of all potentially interested and qualified citizens. Because women are underrepresented in the science and engineering workforce, NSF supports efforts aimed at increasing the number of women as full participants in the science and engineering mainstream of the nation's workplace. Of special interest is their representation in education and research leadership.

The Professional Opportunities for Women in Research and Education (POWRE) program contributes to this goal by supporting activities designed to promote the development of scholarly and institutional leaders in research and education. POWRE is a Foundation-wide program with activities designed to increase women's prominence in science and engineering and to enhance their professional advancement by providing women with funding opportunities not ordinarily available through regular research and education grants. The former Visiting Professorships for Women, Faculty Awards for Women, Research Planning Grants for Women, and Career Advancement Awards for Women programs have been integrated and incorporated into the POWRE program.

The Foundation is particularly interested in increasing the participation of minority women, women with disabilities, and women whose careers have been interrupted. Proposals from members of these groups are especially encouraged.

Objectives and Target Audience

POWRE addresses the need to develop full use of the nation's human resources for science and engineering. The objectives of the program are:

- to provide opportunities for further career advancement, professional growth, and increased prominence of women in engineering and in the disciplines of science supported by NSF; and
- to encourage more women to pursue careers in science and engineering by providing greater visibility for women scientists and engineers in academic institutions and in industry.

The POWRE program is targeted at women scientists and engineers who currently (1) hold non-tenured academic positions or industrial positions, (2) hold academic tenured or tenure-track positions, or (3) plan to enter or re-enter academia.

Program Description

The POWRE program allows flexibility in the choice of activities designed to provide academic and professional opportunities for women in science and engineering. The following categories of activities will be supported:

- Visiting Professor: supports activities at a host academic institution for the conduct of research projects and/or for engaging in innovative educational activities that have promise beyond the home institution's traditional education approaches.
- Visiting Researcher: supports activities for academically employed women to conduct research and development projects at an industrial or non-Federal organization.
- Research/Educational Enhancement: supports opportunities to enhance the applicant's research and/or educational activities at the home institution or at an external site through: (1) access and utilization of new and/or special facilities, skills, or methodologies; or (2) exploratory or pilot work to determine feasibility of a new line of inquiry or educational activity.
- Supplements: supports additional research and/or education activities for women principal investigators or co-principal investigators under existing NSF grants to (1) take advantage of a special opportunity (e.g., pursuit of a promising new direction in research or education, an international collaboration, an innovative idea for integrating research and education), or (2) provide extra support at a critical career stage (e.g., after major administrative demands, after a career

interruption to accommodate family responsibilities or relocation requirements). Potential supplement applicants should contact the cognizant program officer, and directorate-specific information may be available on the home page of the appropriate NSF directorate/office.

Only single-investigator proposals are appropriate. In the case of supplement requests from female principal or co-principal investigators on an existing multiple-investigator award, any supplement request must be submitted by a single individual.

Consideration will be given to international activities to forge linkages between foreign and U.S. scientists and engineers, to provide access to unique research equipment and facilities, to plan joint seminars and workshops, or to address issues that can benefit from international comparisons. International experiences and collaborations are encouraged within each of the above categories where the international experience is well-justified and necessary to achieve the scope of the project. Awards will be made only to U.S. institutions. POWRE applicants wishing to pursue international activities should consult *International Opportunities for Scientists and Engineers* (NSF 96-14).

Eligibility

Eligibility is limited to women scientists and engineers who hold a doctorate at the time of submission in a field of research supported by NSF (in exceptional circumstances, experience equivalent to the Ph.D. degree will be accepted); are a U.S. citizen, national, or permanent resident at the time of proposal submission; and, hold, or have held, a faculty or research-related position in a U.S. college, university, or other non-profit institution. Alternatively, applicants for the Visiting Professor position may be currently employed in industry or be on the staff of a scientific or engineering professional organization.

Additional eligibility requirements for POWRE supplement requests may have been established in specific directorates. Applicants for POWRE supplements should consult the cognizant program officer, and specific information may be available on the home page of the appropriate NSF directorate/office.

Women who wish to enter or re-enter academia, who wish to advance to tenure-track and tenured academic positions, or who aspire to leadership positions in academic environments are encouraged to apply to the POWRE program. Women whose careers have been interrupted and intend to resume an academic career are encouraged to apply in either the Visiting Professor or Research/Educational Enhancement categories of the POWRE program.

Award Size and Duration

NSF funding for the POWRE program in FY 1997 will be approximately $6.0 million. Subject to availability of funds, the anticipated budget for each of FY 1998, FY 1999, and FY 2000 is $11.0–$12.0 million.

Awards for the Visiting Professor, Visiting Researcher, and Research/Educational Enhancement categories of the POWRE program will be made for up to 18 months duration and for up to the following maximum budget amounts (which include both direct and indirect costs): Visiting Professor, up to $150,000; Visiting Researcher, up to $150,000; and Research/Educational Enhancement, up to $75,000.

Inquiries

Questions about the POWRE program may be addressed to the following members of the NSF POWRE Coordinating Committee: Computer and Information Science and Engineering, Caroline Wardle, 703-306-1980, cwardle@nsf.gov; Education and Human Resources, Margrete Klein, 703-306-1649, mklein@nsf.gov; and Mathematical and Physical Sciences, Denise Caldwell, 703-306-1807, dcaldwel@nsf.gov. Alternatively, program-related questions may be directed to the NSF program officer who works in the specific discipline.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF web site at http://www.nsf.gov. NSF is located at 4201 Wilson Boulevard, Arlington, VA 22230; NSF Information Center: 703-306-1234; TDD (for the hearing-impaired): 703-306-0090; to locate NSF employees: 703-306-1234. To order publications or forms: email pubs@nsf.gov or call 703-306-1130; in your request, include the NSF publication number and title, your name, and a complete mailing address.

The information in this article is taken from publication NSF 97-91.

INTEGRATED CALCULUS

In spring semester 1988, Professor McAllister taught calculus in the evening session. The class consisted of very alert and motivated adult students whose biggest ordeal was dealing with basic algebra. The usual recommendation to take a precalculus course would delay graduation by a couple of semesters for some of them. Considering the financial sacrifices of and the difficulties faced by these individuals, the instructor decided to offer an option to the students. She would come in earlier and stay later so she could review basic algebra as necessary for the students to gain sufficient skills. Examples of topics were: "review simplification and factoring for the purpose of simplifying the expression of a first derivative before finding the second derivative" and "introduce transcendental functions such as logarithms and trigonometric functions." The instructor felt that this mode definitely held the attention of the students, who seemed really eager to learn more about calculus but were hindered in their efforts by inadequate backgrounds.

Since the early 1970's, all incoming students at Moravian College have been given an assessment test by the department of mathematics. Based on the student's score and field of interest, a recommendation was made to the student to take precalculus, one of the calculus courses, or a "mathematics appreciation" course such as Principles of Mathematics or Elementary Statistics.

A "computer calculus" course had also been created in the early 1970's as the result of efforts to enhance the teaching of calculus. The course was called "computer calculus" because a few canned programs had been created and made available to the students to highlight the computational aspects of calculus. Although successful with the students, it did not seem to prepare them to take our multivariate calculus course. Thus computer calculus became a terminal course. In the early 1980's, the course was slowly transformed into a "short calculus" with some modeling that included an emphasis on applications to the life and social sciences.

Having the students write their own programs in the computer calculus course was frustrating for the students, as their programming abilities were not sophisticated enough to deal with the computational aspects of calculus. On the other hand, students who thought they knew how to program tried variations on the canned programs which fouled things up for the next users of the system. The emphasis on applications in the short calculus did not seem to be the solution, either. Unless the applications were absolutely trivial, they added a new dimension of difficulty. In the precalculus course, most of the students had already seen the material and didn't like it.

For these reasons, we conceded that a new approach was needed. Based on the spring 1988 night course, the integration of algebra review within the regular calculus was discussed by the department. The members agreed to a trial of the "integrated calculus" beginning in fall 1988.

A committee was formed to create the new courses. After consulting with colleagues at other institutions, the committee recommended a pair of courses that would: 1) cover the content of Calculus I in two semesters and 2) enable the instructor to review precalculus and present some applications to the life and social sciences. We designed a study to monitor whether there had been any real improvements.

The integrated calculus was used on a large scale in fall 1988. The first time around, it was difficult for some faculty to use a precalculus book along with the calculus book. This problem was resolved when some members of the department wrote a draft of the *Calculus Companion*, which has since been published.

The statistical study

In a study comparing fall 1987 and fall 1988, the variables of high school rank, SAT math score, SAT verbal score, average math grade as a high school senior, and Moravian College entry assessment score were compared to fall semester grade in math at Moravian. The results were inconclusive.

The students were divided into four categories by whether they were in precalculus or integrated calculus and by whether they completed or withdrew from the course. The students were compared according to the variables mentioned above.

by Mohammed Bugaighis and Luisa Maria Nicosia McAllister, Moravian College. McAllister presented this material in an MAA session on a "more lively calculus" at the Joint Meetings in Phoenix, January 1989. Bugaighis, assisted by student Jeff Young (class of '89), devised the statistical study.

No significant differences were found in the simple descriptive statistics or in the statistics of differences in means among the four groups. Stepwise and linear regression analyses were conducted on the two groups of freshman classes who had completed the assigned courses. No significant predictors of performance were found.

So the students taking the two courses were statistically similar. However, the withdrawal rate from the integrated calculus was lower than the withdrawal rate from the precalculus course. Thus it seems that the students were more successful in the integrated calculus course even though it was actually harder than the precalculus course.

This is evidence that the integrated calculus concept is a viable one. Professor McAllister strongly believes that a little more challenge makes the students try harder.

In conclusion, we would like to urge our colleagues everywhere to include as unbiased an evaluation as possible in the process of designing new courses, rather than relying solely on personal observations and anecdotal evidence. And we hope that the mathematical community will continue to analyze the deep-rooted lack of confidence many of our students display in their capabilities to perform basic and simple (to us!) algebraic manipulations.

WEB SURFING

It's rather chilly here in Chicagoland on Memorial Day, but I've been surfing nonetheless. I had collected a pile of URL's and finally had time to revisit them or to check them out. Of course many sites have links to other sites, so I visited many more sites than those in my initial pile of references. Here is a report on some of my findings.

There are two fine sites devoted to women in mathematics. Marie Vitulli's Women in Math Web Site Project at http://darkwing.uoregon.edu/~vitulli/WomenInMath is a well-designed set of links to other web sites in the following categories: publications, people, associations, opportunities, activities, statistics, and miscellaneous. Larry Riddle's page at http://www.scottlan.edu/lriddle/women/women. htm lists many women in mathematics. Short biographies, written primarily by Riddle and his students at Agnes Scott College and accompanied by photos, are available here. Links to other resources are also given.

Concerns of Young Mathematicians, the newsletter of the Young Mathematicians Network, is usually pretty interesting. I learned about some of the sites I visited in this electronic publication. Also, there are many interesting articles in the archives. To subscribe or change your subscription, contact Charles Yeomans at cyeomans@ms.uky.edu. Back issues and other information are available via anonymous FTP to ftp.ms.uky.edu, in pub3/mailing.lists/ymn-list, or on the world wide web via the YMN homepage at http://www.ms.uky.edu/~cyeomans. The YMN Newsletter Archive maintained by Steve Brick can be reached from the YMN homepage or directly at the URL http://www.math.usouthal.edu/ymn.html.

Not surprisingly, there are many articles about the lousy job market and how to maximize your potential for obtaining that elusive tenure-track job. Another focus is on how to establish your career, whether in academia or industry. Volume 5, Issue 6, contains "Getting Started in Research" by Frank Sottile. "Grant Writing Basics" by Tina Straley (who has led grant-writing discussions at AWM workshops, among other presentations on the topic) appears in Volume 4, Issue 19. "An interesting idea for summer funds" in Volume 5, Issue 13 discusses unemployment compensation. Other articles have been covered in earlier issues of this *Newsletter*.

A number of web publications are intended to help graduate students survive to obtain the Ph.D. Our own Dianne O'Leary (webmaster of AWM-Net) has written "Graduate Study in the Computer and Mathematical Sciences: A Survival Manual." It may be accessed at http://www.cs.umd.edu/~oleary/gradstudy/gradstudy.html. She gives advice to graduate students in computer science and mathematics on issues such as facing oral exams, choosing an advisor, making career choices, etc. Recently she added a chapter on ethics and expanded the resource pointers.

Once you have the degree, how do you get the job? "Tips on How to Get a Job" by Steve Hurder at the University of Illinois at Chicago is an excellent resource. The text may be found at http://www.

Anne Leggett, Newsletter Editor

math.uic.edu/gaj.html. This is one part of the larger Employment Resource Guide site at http://www.math.uic.edu/jobs.html.

On April 1, the AMS began offering a new service, the 1997 Job Seekers List. This free service is available via e-Math only at http://www.ams.org/jobseekers/. This service will be offered each year, late in the hiring season, for those who have applied for academic jobs in mathematics and are still seeking employment for the fall. Questions may be sent to emp-info@ams.org.

Sam Buss at UC San Diego has a web page called "Math Job Search Resources" under construction at http://math.ucsd.edu/~sbuss/GradInfo/index.html.

The European Mathematical Society is now offering a new service Euro-Math-Job, collecting web pages on vacant academic jobs in mathematics and statistics around Europe at http://www.maths.lth.se/nordic/Euro-Math-Job.html.

Just what careers are available to mathematicians, statisticians, and computer scientists? This question is interesting for students at all levels, including Ph.D. candidates who realize they should consider industry as well as academia in the current job climate. The AMS-MAA-SIAM Mathematical Sciences Career Information Project is intended to provide some answers. The home page is found at http://www.ams.org/committee/profession.

Career Profiles are available at both http://www.ams.org/careers (proforum.html for the current month, and archived.html for the archive) and http://www.maa.org/careers/index.html. The May postings at the AMS-SIAM site include Jane Cullum, member, research staff, IBM; Burt Kaliski, chief scientist at RSA Data Security, Inc.; John Matulis, senior scientist analyst/programmer, SmithKline Beechham Pharmaceuticals; and Karl Rudnick, senior scientist, SAIC. At the MAA site, we find Sue E. Waldman, mathematician, Columbia Plateau Conservation Research Center, U.S. Department of Agriculture; Michael D. Weiss, agricultural economist, U.S. Department of Agriculture; Judith R. Brown, manager, Advanced Research Computing Services, The University of Iowa; and Valeria Lopez, actuarial analyst, Towers Perrin.

The National Academy of Sciences has added a new page to their web site. The Career Planning Center for Beginning Scientists and Engineers, at http://www2.nas.edu/cpc/, provides listings of job openings and also guidance and information for making decisions about education and career choices. *Careers in Science and Engineering: A Student Planning Guide to Grad School and Beyond* is available there. Profiles are interspersed with other material. For instance, in the chapter on meeting career goals, the question "how does a mathematics major... get to be an actuary" is answered by Russell Greig, a Florida A&M grad who now works for an insurance advisory company.

Information on jobs in higher education may be found at http://volvo.glis.utexas.edu/~acadres/jobs/index.html. The Feminist Majority Foundation Online, http://www.feminist.org, has both a Feminist Career Center and a Career Information section.

Our professional societies all have web pages with lots of good information. Some examples are included above. The text of the *SIAM Report on Mathematics in Industry* resides at http://www.siam.org/mii/miihome.htm. Up-to-date information on NSF grant opportunities is available at http://www.nsf.gov. Statistics gathered by a large number of federal agencies are at http://www.fedstats.gov.

Potpourri: A directory of organizations encouraging women in science and engineering is available at http://www2.nas.edu/cwse. Information on Mathcounts, the national math coaching and competition program for seventh and eighth graders, is located at http://thechalkboard.com/MC. A web page on intellectual property is maintained by the Association of Research Libraries at http://arl.cni.org/scomm/ip.html. We find the History of Mathematics Home Page at http://aleph0/clarku.edu/~djoyce/mathhist/mathhist.html. Robert S. Boyer of UT Austin has a page on "Tenure's possible demise at some U.S. universities" at http://www.cs.utexas.edu/users/boyer/tenure.

On the lighter side, Arnold Reinhold has authored the web page "Math in the Movies (a guide to major motion pictures with scenes of real mathematics)" at http://world.std.com/~reinhold/mathmovies.html. I learned that in "Die Hard: With A Vengeance," Bruce Willis and Samuel L. Jackson are given a five gallon jug and a three gallon jug and must put exactly four gallons of water on a scale to keep a bomb from exploding. The Charles Babbage Institute has listed movies with a computer science ingredient at http://www.cbi.umn.edu/movies.htm. Bamdad's Math Comics are located at http://www.csun.edu/~hcmth014/comics.html.

UNIVERSITY OF CALIFORNIA & GENDER PAY GAP LAWSUIT

The historic first gender pay gap lawsuit against the University of California system (UCSB) will be settled with an unprecedented permanent injunction issued in Santa Barbara Superior Court against the University and its Regents. Once finalized, the court order agreed to by UC secures permanent future protection for Professor Yolanda Broyles-Gonzalez against gender, race, and political discrimination as well as against retaliation by the University of California. Once signed by the Court, it guarantees court protection on any discriminatory breach of the injunctive order by any of the University of California's agents in the administration or faculty. Acceptance of the permanent Court injunction by the University of California is an unspoken admission of liability. The injunction will place UC discriminatory actions under permanent court scrutiny and custody.

A second provision of the settlement is UC's payment of damages to Professor Broyles-Gonzalez, including costs and attorneys' fees. The total is expected to exceed $100,000. Professor Broyles-Gonzalez will dismiss the lawsuit when all provisions are met.

Dr. Broyles-Gonzalez refused to accept a "gag order" which UC usually imposes in order to keep the terms of settlement secret. The gag order would have legally barred Professor Broyles-Gonzalez from speaking about the settlement. UC fears bad publicity and has always insisted on secrecy. Through the Public Records Act, the San Jose *Mercury News* last year obtained and exposed the high cost of UC's gender discrimination. The news broke on July 7, 1996, in an article subtitled "UC Spends Millions On Sex-Bias Cases."

Professor Broyles-Gonzalez was the first woman to legally challenge the unequal payment of women and minorities within UC. UC's unequal payment of women has been documented in various internal and external studies. In 1995, the journal *Monthly Forum on Women in Higher Education* ranked UCSB as the ninth worst offender nationally with regard to the unequal payment of women faculty. The gender inequality in academic salaries at UCSB is manifest in a $12,900 difference in the average salary for male and female full professors.

press release

Professor Broyles-Gonzalez's lawsuit also challenged the University's practice of unlawful retaliation against those who act on academic and political views contrary to those of administrators. Specifically, Chancellor Yang and Vice Chancellor Crawford denied Professor Broyles-Gonzalez's reappointment as Chair of the Chicana/o Studies Department in 1994. The non-reappointment came immediately after she supported both the Student Hunger Strike in 1994 and Professor Rudy Acuna's successful discrimination lawsuit against the University of California.

Professor Broyles-Gonzalez's lawsuit has brought national attention to the unequal treatment of women and minorities at the nation's universities such as UC. In accepting the permanent injunction, UC capitulates its legal position, but also takes a step to bring early resolution to the case. This outcome marks another victory for women and minorities throughout the UC system and the nation.

Professor Yolanda Broyles-Gonzalez is a Yaqui-Chicana native of the Arizona-Sonora borderlands. She studied in Germany for twelve years and received her doctorate in German Studies from Stanford University. In 1985, Dr. Broyles-Gonzalez became the first woman of color to receive tenure at UCSB. In 1991, she was advanced to Full Professor. She was the first native woman to chair an academic department in the UC system (1990–94). In 1996, she received the lifetime Distinguished Scholar Award from the National Association for Chicana/o Studies. Her most recent book is *El Teatro Campesina: Theater in the Chicano Movement*. She is currently working on another book.

DUES & BALLOT NOTICE

Please pay your dues when you receive your first notice! Consider becoming a contributing member. Encourage your institution to join.

Ballots will be enclosed in the November–December issue of the *Newsletter*. If yours is missing or you spoil the ballot, contact the AWM office at awm@math.umd.edu or 301-405-7892 by November 20th for a replacement.

AN OPEN LETTER TO THE SCIENTISTS OF MY GENERATION

I am Alan Hale, the co-discoverer of Comet Hale-Bopp which, as I'm sure you're aware, has received a tremendous amount of media attention. As I'm sure is true for many of you, I was inspired by the scientific discoveries and events taking place during my childhood to pursue a career in science only to find, after completing the rigors of undergraduate and graduate school, that the opportunities for us to have a career in science are limited at best and are what I usually describe as "abysmal." Based upon my own experiences, and those of you with whom I have discussed this issue, my personal feeling is that, unless there are some pretty drastic changes in the way that our society approaches science and treats those of us who have devoted our lives to making some of our own contributions, there is no way that I can, with a clear conscience, encourage present-day students to pursue a career in science. It really pains me a great deal to say something like that, but I feel so strongly about this that I have publicly made this statement at almost every opportunity I have been given.

I am trying to use the media attention that is currently being focused upon me to raise awareness of this state of affairs, and perhaps start to effect those changes that will allow me to convey a more positive message to the next generation. So far, I'm sensing a certain reluctance among the media to discuss this issue, as they seem far more interested in items which I consider to be irrelevant and unimportant. But I intend to keep hammering away at this, and I'd like to believe that eventually some are going to sit up and take notice. I am also attempting to schedule meetings with some of our government leaders, to see if I can at least get some acknowledgement from Washington that this is a problem that needs to be dealt with.

My reason for writing to you is to ask your help. I know that I'm not alone in being frustrated about the current prospects for pursuing any kind of decent career within science, and I'm quite sure that many of you have "horror stories" about your searches for decent employment that are quite similar to my own. I'd like to hear them. I'd especially like to hear from those of you who are on your second or third or fourth post-doc, or who have left the field as a result of the employment situation, or who have experienced severe personal difficulties (e.g., break-up of a marriage, etc.). I realize that some of these might be painful to discuss, but I'd like to show that we are not a bunch of impersonal statistics, but human beings trying to make an honest living and perhaps make a contribution or two to society while we're at it. Speaking of statistics, if you received any information about the numbers of applicants to some of the positions you applied to — which was often a three-digit number in my case — I'd like to hear that, too.

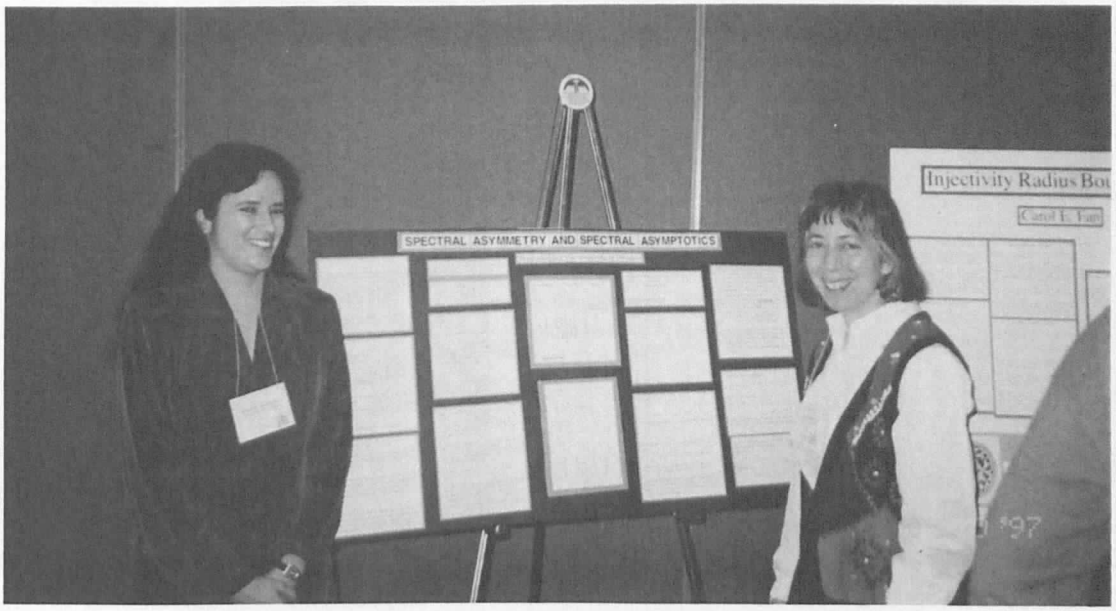
Please email your stories to me at ahale@nmsu.edu, with a subject line of "horror stories" or something similar. Please let me know if you would prefer to remain anonymous when I share these stories with the press and the government. Also, please pass this message on to any of your friends and colleagues who might be interested in sharing their stories with me, and keep in mind that I would like to receive stories from as many scientific disciplines as possible. (Because of the amount of email traffic I'm receiving these days, along with everything else that's going on, I probably won't be able to acknowledge each message individually.) Thank you for your time, and I hope to hear from you. Perhaps, with the opportunity we have before us right now, we have the chance to make a difference.

Sincerely, Alan Hale

SIGHTS

A new career newsletter for high school girls, *Sights! Choices and Challenges in Life's Journey for Teenage Girls*, has been started by database administrator Alice Erickson and bilingual elementary teacher Julie Drew. Most publications for this age group are concerned with relationships and appearance, but *Sights*, which costs $25/year, describes the journeys women take in developing their professional selves. Monthly features include interviews with high-school and college students as well as with women beginning their careers and with established, successful women. More information can be found at the newsletter web site: http://www.midplains.net/~sights or by emailing: sights@midplains.net.

AWM WORKSHOP



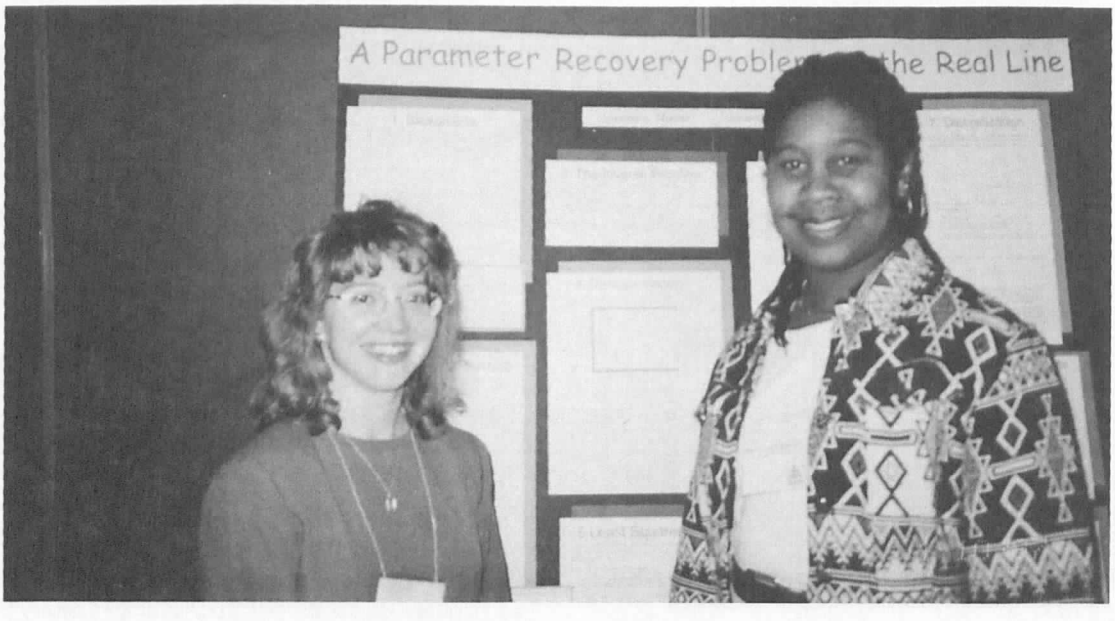
Mary Sandoval (University of Michigan) and Carolyn Gordon (Dartmouth College) at Sandoval's poster

Tamara B. Veenstra (Dartmouth College) and
Sylvia Wiegand (University of Nebraska) at Veenstra's poster

SAN DIEGO

Beth Chance (University of the Pacific)

Dorina Mitrea (University of Missouri)



Jennifer Mueller (University of Nebraska) and
Dawn Lott-Crumpler (University of Maryland) at Mueller's poster

AWM WORKSHOP: Focus on Reporting Research Results

held in conjunction with the SIAM Annual Meeting, Stanford University, California, July 13-18, 1997

Preliminary Schedule as of June 6, 1997

The Association for Women in Mathematics (AWM) plans a workshop from Sunday evening through Tuesday morning of the 1997 Annual Meeting of the Society for Industrial and Applied Mathematics (SIAM). AWM and SIAM welcome your participation. The sessions focus on the reporting of research results and the mentoring of graduate students and postdoctoral mathematicians. Our first session is a minisymposium which focuses on skills in written communication involving research papers and grant proposals. The workshop also has three research minisymposium, a panel discussion on research & funding opportunities, and a poster session.

Sunday, July 13, 1997

4:30 p.m. - 6:00 p.m.. **AWM Discussion Group** *(invitation only)*

7:00 p.m. **AWM Dinner Banquet**

Keynote Speaker: **Pam Cook,** University of Delaware

Title: ***"Thoughts from a Chair(person)"***

[Cash Bar from 6:15 p.m. to 7:15 p.m. -- attendees must have ticket to attend banquet; contact AWM for ticket information]

Monday, July 14, 1997

8:00 a.m. **Coffee**

8:30 a.m. - 10:30 a.m. **AWM Minisymposium on Presenting Your Work and Yourself to the World: A Focus on Written Communications**

One key to success in academia and industry is a person's ability to communicate with those around her. These talks will focus on how to develop written communication skills. The relevance of excellent technical work must be clearly displayed. Writing journal articles and grant proposals will be included.

Organizer: Linda R. Petzold, University of California, Santa Barbara

8:30 a.m. **Deborah F. Lockhart**, National Science Foundation

9:00 a.m. **Margaret H. Wright**, Bell Laboratories

9:30 a.m. **Lloyd N. Trefethen**, Cornell University

10:00 am. **Linda R. Petzold**, Univ. of California, Santa Barbara

12:00 p.m. - 12:45 p.m. **Lunch** *[see information below for more details]*

12:45 p.m. - 1:30 p.m. **Panel Discussion on Research and Funding Opportunities**

Panelists: **Avner Friedman,** Institute for Mathematics and its Applications

Deborah F. Lockhart, National Science Foundation

Wen Masters, Office of Naval Research

1:30 p.m. - 2:30 p.m. **Poster Session for Graduate Students**

Donna Calhoun, University of Washington

Carolyn (Hill) Coleman, Case Western Reserve Univ.

Ivonne Diaz-Rivera, Arizona State University

Anna V. Georgieva, Duke University

Sigal Gottlieb, Brown University

Misha E. Kilmer, University of Maryland, College Park

Kristen S. Moore, University of Connecticut

Ruth Pfeiffer, University of Maryland, College Park

Svetlana Rudnaya, University of Minnesota

Maria Sosonkina, Virginia Tech

3:30 p.m. - 5:30 p.m. **AWM Minisymposium on Mathematical Modeling**

Modeling is the key to many application areas. This minisymposium will treat a variety of mathematical models and applications. The underlying systems to be modeled range from continuous to discrete.

Organizer: Suzanne M. Lenhart, University of Tennessee, Knoxville

3:30 p.m. **Gabriella A. Pintér**, North Carolina State University

4:00 p.m. **Debra Polignone Warne**, Univ. of Tennessee, Knoxville

4:30 p.m. **Kathleen A. Rogers**, University of Maryland, College Park

5:00 p.m. **Hong Zhou,** University of North Carolina, Chapel Hill

3:30 p.m. - 5:30 p.m. **AWM Minisymposium on Optimization**

This minisymposium will present a variety of optimization problems with varied applications. The impact of scientific computing on these problems will be illustrated.

Organizer: Margaret H. Wright, Bell Laboratories

3:30 p.m. **Dana Bedivan**, University of Texas at Arlington

4:00 p.m. **Tamara G. Kolda**, University of Maryland, College Park

4:30 p.m. **Lianfen Qian**, Florida Atlantic University

5:00 p.m. **Zhiyun Yang**, Pacificorp

- continued on next page -

Tuesday, July 15, 1997

AWM WORKSHOP at SIAM - Continued

8:00 a.m. **Coffee**

8:30 a.m. - 10:30 a.m. **AWM Minisymposium on PDEs and Applications**

Partial differential equations model a variety of physical and biological applications. This minisymposium will showcase different types of PDEs and solution methods and display the applications.

Organizer: Joyce R. McLaughlin, Rensselaer Polytechnic Institute

8:30 a.m. **Xin Chen**, University of Illinois Laboratory
9:00 a.m. **Dawn A. Lott-Crumpler**, Univ. of Maryland, College Park
9:30 a.m. **Elsa Newman**, Marymount University
10:00 a.m. **Barbara Niethammer**, CIMS, New York University

REGISTRATION: There is **NO registration fee for the AWM Workshop.** The minisymposia, panel session and poster session are open to all. **Pre-registration for workshop lunch and dinner banquet tickets are strongly encouraged.** Tickets on-site will be very limited. Individuals can inquire about ticket availability from the AWM staff on-site. Any questions, contact: **301-405-7892 or awm@math.umd.edu.**

ADVERTISEMENTS

ASSOCIATION FOR WOMEN IN MATHEMATICS

1997/1998 MEMBERSHIP FORM

AWM's membership year is from October 1st to September 30th. Please fill-in this information and return it along with your DUES to:

AWM Membership
4114 Computer & Space Sciences Building
University of Maryland
College Park, MD 20742-2461

The AWM Newsletter is published six times a year and is part of your membership. Questions? (301) 405-7892, or awm@math.umd.edu

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If student, GRADUATE or UNDERGRADUATE? (circle one)

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Institution/Company:
City, State, Zip:

DEGREES EARNED:

	Degree(s)	Institution(s)	Year(s)
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Please check the appropriate membership category below. Make checks or money order payable to: **Association for Women in Mathematics**.
NOTE: All checks must be drawn on U.S. Banks and be in U.S. Funds. AWM Membership year is **October 1st to September 30th.**

REGULAR INDIVIDUAL MEMBERSHIP	$ 40	_____
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STUDENT or UNEMPLOYED MEMBERSHIP (circle one)	$ 10	_____
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INSTITUTIONAL MEMBERS WILL RECEIVE ONE FREE JOB ADVERTISEMENTS (*up to* **four** *lines*) IN OUR NEWSLETTER PER YEAR. Advertising deadlines are the 1st of every EVEN month. All institutions advertising in the AWM Newsletter are Affirmative Action/Equal Opportunity Employers. Also, Institutions have the option to nominate students to receive the newsletter as part of their membership. NOTE: List names and addresses of student nominees on opposite side or attach separate page. [ADD $10 ($18 for foreign members) for each additional student add-on over initial 10 students for Category I; over initial 3 students for Category II]

J/A97

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AWM

Newsletter

Volume 27, Number 4, July–August 1997

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